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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/044,798	01/10/2002	Michael Tombs	211/New	8385

7590

05/06/2003

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EXAMINER

LAMB, BRENDA A

ART UNIT

PAPER NUMBER

1734

8

DATE MAILED: 05/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/044,798

Applicant(s)

TOMBS ET AL

Examiner

LAMB

Group Art Unit

1734

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- ☒ Responsive to communication(s) filed on 3/11/03
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-7 is/are pending in the application.
- Of the above claim(s) 6-7 is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 1-5 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement.

Application Papers

- ☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
 - ☒ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been received.
 - ☐ received in Application No. (Series Code/Serial Number) _____.
 - ☐ received in this national stage application from the International Bureau (PCT Rule 1.7.2(a)).

*Certified copies not received: _____

Attachment(s)

- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s) _____
- ☐ Interview Summary, PTO-413
- ☒ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Other _____

Office Action Summary

Applicant's election without traverse of Group I in Paper No. 7 is acknowledged.

Claims 1-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-3 are confusing since applicant's figures shows a surface of the substrate/circuit board is wetted by solder and also shows surfaces of the reservoir or nozzle are wetted by solder and, therefore, it is unclear whether the claimed "surface which is wetted by the solder" is part of the substrate/circuit board or the reservoir/nozzle.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by Zimmerman 2,770,875.

Zimmerman teaches the design of a dip soldering apparatus as shown in Figures 8 and 8a which has a reservoir 115 with solder and leads from an electrical board. If the examiner interprets the surface which is wetted by the solder as being the substrate to be soldered, then Zimmerman teaches every claimed structural element as shown in Figures 8 and 8a. If the examiner interprets the surface to be wetted by the solder as being part of the reservoir, then Zimmerman teaches his reservoir includes a lining 117 and the lining 117 is wettable by the solder (see column 6, lines 35-72, column 10, lines 16-29). The Zimmerman lining 117 includes a plurality of surfaces which face the substrate to

be soldered. Zimmerman teaches every claimed structural element of the apparatus.

Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Kent.

Kent teaches the design of a solder apparatus as shown in Figure 8 which is comprised of a plurality of nozzles/short tubes with a taper and are used to direct the solder toward the surface of a terminal lead from a circuit board (elements 66, 67 and 68). The examiner has interpreted the surface to be wetted by the solder as being the substrate which one is applying solder onto. Kent shows a surface of the substrate one is applying solder onto is positioned at the nozzle outlet and extends below the upper surface level of the solder in order to effectively apply solder to the surface of the substrate. Therefore, Kent teaches every element of the claimed solder applying means. With respect to claim 5, Kent teaches that the substrate is movable relative to the solder surface via a conveyor.

Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Kent and Zimmerman.

Zimmerman is applied for the reasons noted above. The examiner has interpreted the surface to be wetted by the solder as being part of the nozzle assembly or reservoir that one is using to apply solder onto the substrate. Zimmerman teaches the solder applying means having the combination of an

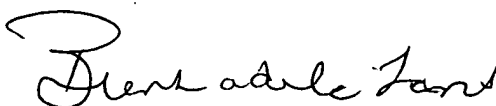
inner layer of a solder wetting material and an outer layer of solder non-wetting material. Zimmerman teaches the combination of materials on the applying means enables one to form a convex meniscus of solder without the solder running off the side of the applying means and prevent occlusion of flux and gases within the cup which would interfere with proper soldering operation. Zimmerman fails to disclose the soldering applying means is shaped so to form a nozzle. However, Kent shows in Figure 8 a plurality of nozzles/short tubes having a tapered outlet which is used to direct the solder onto the substrate (elements 66, 67 and 68). Kent teaches the solder applying means is constructed from a material such that the solder rises above the nozzles to form a convex meniscus yet does not flow over the sides of the nozzles. Kent fails to teach the nozzle housing includes a surface having properties within scope of claims. However, it would have been obvious to modify the Kent solder applying nozzles by constructing the nozzles using an inner layer of solder wettable material and an outer layer of a solder non-wettable material such as taught by Zimmerman rather than using the disclosed titanium for the obvious reason to expect similar results, that is, formation of a meniscus at the solder applying means outlet since both Zimmerman and Kent teaches constructing the solder applying means from materials to enable one to form a meniscus at the solder applying means outlet. Alternatively, it would have been obvious to modify the Zimmerman by tapering the side walls of the reservoir so as to form a nozzle

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outlet such as shown by Kent for the obvious advantage of presenting a narrower/smaller meniscus surface to the substrate – more precise application to the substrate

Any inquiry concerning this communication should be directed to Brenda Lamb at telephone number 703-308-2056. The examiner can normally be reached on Monday and Wednesday through Friday with alternate Tuesdays off.

B. A. Lamb/mn
April 11, 2003


BRENDA A. LAMB
PRIMARY EXAMINER
GROUP 1800